

## REMARKS

This Reply and Amendment is intended to be fully responsive to the non-final Office Action dated September 16, 2002.

### In the Title

The Title has been amended for clarity. 37 C.F.R. § 1.72.

### In the Claims

Claims 1-38 have been cancelled, Claims 39-41 have been amended for clarity, and new Claims 42-75 have been added to present claims of varying scope.

The claim amendments and status of the claims are shown in Exhibit A "marked-up" to show all changes relative to the previous version of the claims. 37 C.F.R. § 1.121. No new matter has been added.

### Election/Restriction

On Page 2 of the Office Action, the Examiner restricted the claims of the present Application to one of the following "inventions":

- I. Claims 1-21, drawn to a method of making battery plates, classified in class 429, subclass 225.
- II. Claims 22-31, drawn to a second method of making battery plates, classified in class 75, subclass 697.
- III. Claims 32-38, drawn to a method of making a battery grid, classified in class 29, subclass 2.
- IV. Claims 39-42, drawn to a battery grid, classified in class 429, subclass 233.

The Applicants elect the "invention" grouped by the Examiner as Group I (Claims 39-42, drawn to a battery grid as originally presented). Claims 1-38 have been cancelled without prejudice to further prosecution on the merits. New Claims 44-75 are intended to

include the "invention" grouped by the Examiner as Group IV (Claims 39-42 as originally presented).

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The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present Application.

Respectfully submitted,

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**Exhibit A**  
**To Show All Changes Relative to Previous Version of the Claims**

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled).
8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Cancelled)
12. (Cancelled
13. (Cancelled)
14. (Cancelled)
15. (Cancelled)
16. (Cancelled).
17. (Cancelled)
18. (Cancelled)
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)
26. (Cancelled)
27. (Cancelled)

- 28. (Cancelled)
- 29. (Cancelled)
- 30. (Cancelled)
- 31. (Cancelled)
- 32. (Cancelled)
- 33. (Cancelled)
- 34. (Cancelled)
- 35. (Cancelled)
- 36. (Cancelled)
- 37. (Cancelled)
- 38. (Cancelled)

39. (Once Amended) A grid for a battery comprising:  
a [grid] network bordered by at least one frame element, one of the frame elements having a current collector lug[.];  
the [grid] network comprising a plurality of spaced apart [grid] wire elements, each [grid] wire element having opposed ends, each opposed end being joined to one of a plurality of nodes to define a plurality of open spaces;  
[the grid network being coated on substantially all surfaces with a lead alloy coating] a lead alloy coated on substantially all surfaces of the network;  
at least a portion of the [grid] wire elements having a first transverse cross-section taken at a position intermediate the opposed ends of the [grid] wire element [that differs from] and a second transverse cross-section taken at one of the opposed ends of the [grid] wire element.

40. (Once Amended) The grid of [claim] Claim 39 wherein[:] the second transverse cross-section is substantially rectangular.

41. (Once Amended) The grid of [claim] Claim 39 wherein[:] the first transverse cross-section has a shape selected from group consisting of diamond, oval, rhomboid, hexagon, and octagon.

42. (New) The grid of Claim 39 wherein the lead alloy comprises a lead-tin alloy.
43. (New) The grid of Claim 41 wherein the lead-tin alloy comprises about 90 weight percent to about 99 weight percent lead and about 1 weight percent to about 10 weight percent tin.
44. (New) The grid of Claim 43 wherein the lead-tin alloy further includes antimony.
45. (New) The grid of Claim 42 wherein the lead-tin alloy comprises about 80 weight percent to about 98 weight percent lead, about 1 weight percent to about 10 weight percent tin, and about 1 weight percent to about 10 weight percent antimony.
46. (New) The grid of Claim 45 wherein the coating has a melting point less than about 620 degrees Fahrenheit.
47. (New) The grid of Claim 43 wherein the network comprises a lead-calcium alloy.
48. (New) The grid of Claim 47 wherein the lead-calcium alloy comprises about 0.06 weight percent to about 0.07 weight percent calcium.
49. (New) The grid of Claim 48 wherein the lead-calcium alloy comprises at least about 0.8 weight percent tin.
50. (New) The grid of Claim 49 wherein the lead-calcium alloy comprises about 1.2 weight percent to about 1.5 weight percent tin.
51. (New) The grid of Claim 50 wherein the lead-calcium alloy comprises tin in a ratio to calcium of greater than about 12:1.
52. (New) The grid of Claim 51 wherein the lead-calcium alloy comprises at least about 0 to about 0.02 weight percent silver.

53. (New) A grid for a battery comprising:  
a network bordered by at least one frame element comprising:  
a plurality of spaced apart wires having a plurality of surfaces;  
a plurality of apertures stamped between the plurality of spaced apart  
wires;  
a coating comprising a lead alloy on the plurality of surfaces of the plurality  
of spaced apart wires;  
wherein the coating is configured to couple an active material to the  
network.
54. (New) The grid of Claim 53 wherein the plurality of spaced apart wires  
include a plurality of planar surfaces.
55. (New) The grid of Claim 54 wherein the plurality of apertures are defined by  
surfaces that are transverse to the plurality of planar surfaces.
56. (New) The grid of Claim 55 wherein the coating is disposed on the surfaces  
that are transverse to the plurality of planar surfaces.
57. (New) The grid of Claim 53 wherein the lead alloy comprises a lead-tin alloy  
comprising about 90 weight percent to about 99 weight percent lead and about 1 weight  
percent to about 10 weight percent tin.
58. (New) The grid of Claim 57 wherein the lead-tin alloy further includes  
antimony.
59. (New) The grid of Claim 53 wherein the lead alloy comprises a lead-tin alloy  
comprising about 80 weight percent to about 99 weight percent lead, about 1 weight  
percent to about 10 weight percent tin, and about 1 weight percent to about 10 weight  
percent antimony.
60. (New) The grid of Claim 59 wherein the coating has a melting point less  
than about 620 degrees Fahrenheit.

61. (New) The grid of Claim 59 wherein the at least one frame element includes a current collector lug.

62. (New) The grid of Claim 59 wherein the active material comprises a paste.

63. (New) The grid of Claim 59 wherein the wire includes a first transverse cross-section taken at a position intermediate an end of the wire and a second transverse cross-section taken at the end of the wire.

64. (New) A grid for a battery comprising:  
means for supporting an active material and having a plurality of exposed surfaces;  
means for coating the means for supporting the active material;  
wherein the means for coating substantially covers the plurality of exposed surfaces.

65. (New) The grid of Claim 64 wherein the means for supporting the active material comprises a network bordered by at least one frame element.

66. (New) The grid of Claim 65 wherein the means for supporting the active material comprises a plurality of spaced apart wires having a plurality of surfaces.

67. (New) The grid of Claim 66 wherein the means for supporting the active material comprises a plurality of apertures stamped between the plurality of spaced apart wires.

68. (New) The grid of Claim 67 wherein the means for coating comprises a coating comprising a lead alloy on the plurality of surfaces of the a plurality of spaced apart wires.

69. (New) The grid of Claim 68 wherein the plurality of spaced apart wires include a plurality of planar surfaces.

70. (New) The grid of Claim 69 wherein the plurality of apertures are defined by surfaces that are transverse to the plurality of planar surfaces.

71. (New) The grid of Claim 70 wherein the coating is disposed on the surfaces that are transverse to the plurality of planar surfaces.

72. (New) The grid of Claim 64 wherein means for coating comprises a lead-tin alloy comprising about 90 weight percent to about 99 weight percent lead and about 1 weight percent to about 10 weight percent tin.

73. (New) The grid of Claim 72 wherein the lead-tin alloy further includes antimony.

74. (New) The grid of Claim 68 wherein the coating comprises about 80 weight percent to about 98 weight percent lead, about 1 weight percent to about 10 weight percent tin, and about 1 weight percent to about 10 weight percent antimony.

75. (New) The grid of Claim 74 wherein the coating has a melting point less than about 620 degrees Fahrenheit.